HSW
STALOWA WOLA

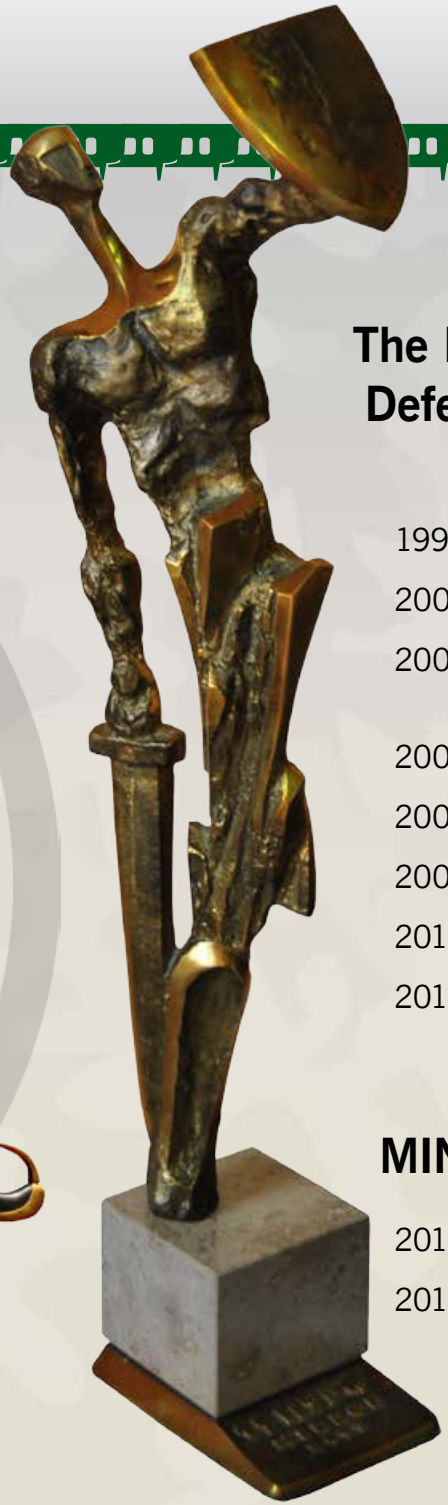
CATALOGUE OF PRODUCTS

Artillery Equipment

Armoured Carriers

Engineering Equipment

Military Units



The DEFENDER Prize of International Defence Industry Exhibition in Kielce awarded to HSW S.A.

1998 – 98 mm Mortar M98

2001 – 35 mm Automatic Cannon KDA

2002 – Universal Engineering Machine Backhoe Loader 9.50

2003 – 155 mm Self-Propelled Howitzer KRAB

2004 – Scattered Mine Laying Vehicle KROTON

2007 – Rocket Launcher WR-40 LANGUSTA

2011 – 120 mm Self Propelled Mortar, wheeled chassis

2013 – Scattered Mine Laying Platform BAOBAB

The honorable mention of the MINISTER OF NATIONAL DEFENSE

2011 – Scattered Mine Laying Platform BAOBAB

2012 – Artillery Battalion of 155 mm Self-Propelled Howitzers REGINA

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CONTENTS

155 mm Self-Propelled Howitzer KRAB 4
120 mm Mortar Turret 8
120 mm Self-Propelled Mortar 10
Rocket Launcher WR-40 LANGUSTA 12
Rocket Launcher LANGUSTA II 14
122 mm Self-Propelled Howitzer GOZDZIK 16
Vehicle for Repair of Armament and Electronics VRAE 20
Wheeled Maintenance and Recovery Vehicle WMRV 20
Artillery Battalion Ammunition Resupply Vehicle ARV 22
Artillery Company Ammunition Resupply Vehicle ARV 24
35 mm Automatic Cannon KDA 25
98 mm Mortar M98 26
120 mm Towed Mortar 27
Command-Staff Vehicles CSV and Command Vehicles CV 28
Command Post Vehicle - wheeled chassis CPV 30
Command Post Vehicle - tracked chassis CPV 31
Light Armoured Multipurpose Tracked Tractor MTLB 32
Track Pads 33
Scattered Mine Laying Platform BAOBAB 34
Scattered Mine Laying Vehicle KROTON 36
Universal Engineering Machine Backhoe Loader 9.50 38
Loader - Dozer SL-34 C 40
Explosion-Proof Double Acting Mechanical Valve 42
Automatic Explosion-proof Valve 43
Hermetic Protection – Bulkhead 44
Ballistic Inserts for bullet-proof, splinter-proof and needle-proof vests 44
Artillery Company Unit of 120 mm Self-Propelled Mortars – RAK 45
Artillery Battalion of 155 mm Self-Propelled Howitzers REGINA 48
Artillery Battalion of Rocket Launchers WR-40 LANGUSTA 50

155 mm Self-Propelled Howitzer KRAB

DESIGNATION

The SPH is intended for destruction of:
- artillery batteries and rocket artillery,
- command posts, communication centres and ground fortifications,
- mechanized and motorized detachments in all locations and all kinds of combat actions,
- helicopters on landing ground,
- important objects of hinterland.

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155 mm Self-Propelled Howitzer KRAB

PARAMETERS

Weight
combat weight (with crew) ..... 52 140 kg
weight of vehicle without crew and ammunition ..... 48 100 kg

Crew
4+1 men

Dimensions:
length max. ..... 12 050 mm
width. max. ..... 3 580 mm
height: to roof of turret ..... 3 130 mm
shipment height ..... 3 420 mm
max. with AA machine gun ..... 3 820 mm

Negotiated obstacles:
gradient ..... 25°
side slope ..... 20°
vertical ..... 0,8 m
trenches ..... 2,5 m
fords ..... 1,0 m

Travel speed:
on surfaced roads ..... 60 km/h
on field rugged roads ..... 15 km/h
pathless tracts in plain terrain ..... 30 km/h

Travel range
with full fuel tanks ..... 650 km

CONSTRUCTION

Engine:
SS12-U. Four stroke, 12-cylinders (V-system), multi fuel, Diesel, water cooled, turbocharged
power max. (at 2000 rpm) ..... 625 kW (850 KM)
max. torque (at 1300 to 1400 rpm) ..... 3 100 Nm

Cooling system:
Liquid, closed with enforced circulation. Air circulation enforced by ejecting.

Transmission:
Mechanical with transfer box, two gear boxes, coaxial side gears.

Transfer box:
Multiplication box with power take off for compressor, starter generator, compressor cooling fan and bilge pump.

Gearboxes:
Power shift epicyclical gears with 7 forward and 1 reverse gear, hydraulic control.

Steering drive:
Hydraulic with distribution mechanism drive.

Running system:
Driving device - track laying with front sprockets. Track belts – steel with rubber pads and silent block joints.

TECHNICAL DATA

calibre ..... 155 mm
length of barrel ..... 52 calibres

Rate of fire:
– burst ..... 3 rounds/10 s
– intense ..... 6 rounds/min. /3 min.
– sustained ..... 2 rounds/min.
– “salvo” effect (MROT) ..... up to 3 rounds/min.

Arc of fire:
– depression/ elevation ..... - 3,5° to + 70°
– traverse ..... n x 360°

Dispersion (% of range):
– Ug ..... up to 0,5
– Us ..... up to 0,1

Range:
– minimum ..... 4,7 km
– maximum ..... 40 km

Ammunition stowage (40 rounds), in this:
– in turret (shells + containers for charges) ..... 29 + 28
– in chassis (shells + containers for charges) ..... 11 + 20
Ammunition according to JBMoU

Secondary armament:
– machine gun ..... 12,7 mm
– smoke grenade launchers (2 x 4) ..... 81 mm

Reaction times:
– into-action time ..... about 30 s
– out-of-action time ..... max. 30 s

155 mm Self-Propelled Howitzer KRAB

LAND NAVIGATION SYSTEM AND POSITIONING SYSTEM
Inertial navigation system FiN 3110L and GPS + odometer

FIRE CONTROL SYSTEM
Turret Control Computer
Bombardier's Computer
Commander's Ballistic Computer

FILTERING -VENTILATION SYSTEM
Ventilation System with FPT-200M filter generating overpressure inside vehicle. Ventilation unit for combat compartment

DIGITAL INTERCOM SYSTEM- FONET, RADIO STATION
Digital radio station VHF RRC 9311-AP

NBC PROTECTION SYSTEM
Automatic NBC contamination detector TAFIOS - B

ANTI-EXPLOSION AND FIRE SUPPRESSION SYSTEMS
Automatic fire suppression system in engine compartment and anti-explosion system in crew and driver compartments

155 mm Self-Propelled Howitzer KRAB

DAY AND NIGHT OBSERVATION DEVICES FOR DRIVER AND COMMANDER
Interchangeable:
– day & night vision device for driver
– day & night vision device for commander

LASER WARNING AND SELF-DEFENCE SYSTEM
Laser warning and self-defence system ("OBRA-3" SSP-1B, smoke/ aerosol grenade launchers)

DIRECT FIRE SIGHT – COB-1
day-night, magnification x6, vision field 1-17 (6,5°)

MUZZLE VELOCITY RADAR MVRS-700 SCD
Antenna, display

AUXILIARY POWER UNIT
DC 27 V, 10 kW, liquid cooling

HYDRAULIC POWER PACK
It supplies energy for actuating of rammer, balance and recoil system

120 mm Mortar Turret

OPTOELECTRONIC DIRECT FIRE SIGHT WITH THERMAL IMAGING CAMERA AND LASER RANGE FINDER

AUTOMATIC AIMING SYSTEM

LOADING SYSTEM – AUTOMATIC IN ANY ELEVATION POSITION

LASER WARNING SYSTEM "OBRA-3" SSP-1A

BALLISTIC COMPUTER

DIGITAL INTERCOM SYSTEM - FONET

DAY AND NIGHT OBSERVATION DEVICES FOR COMMANDER

360 º BATTLEFIELD SURVEILLANCE SYSTEMS

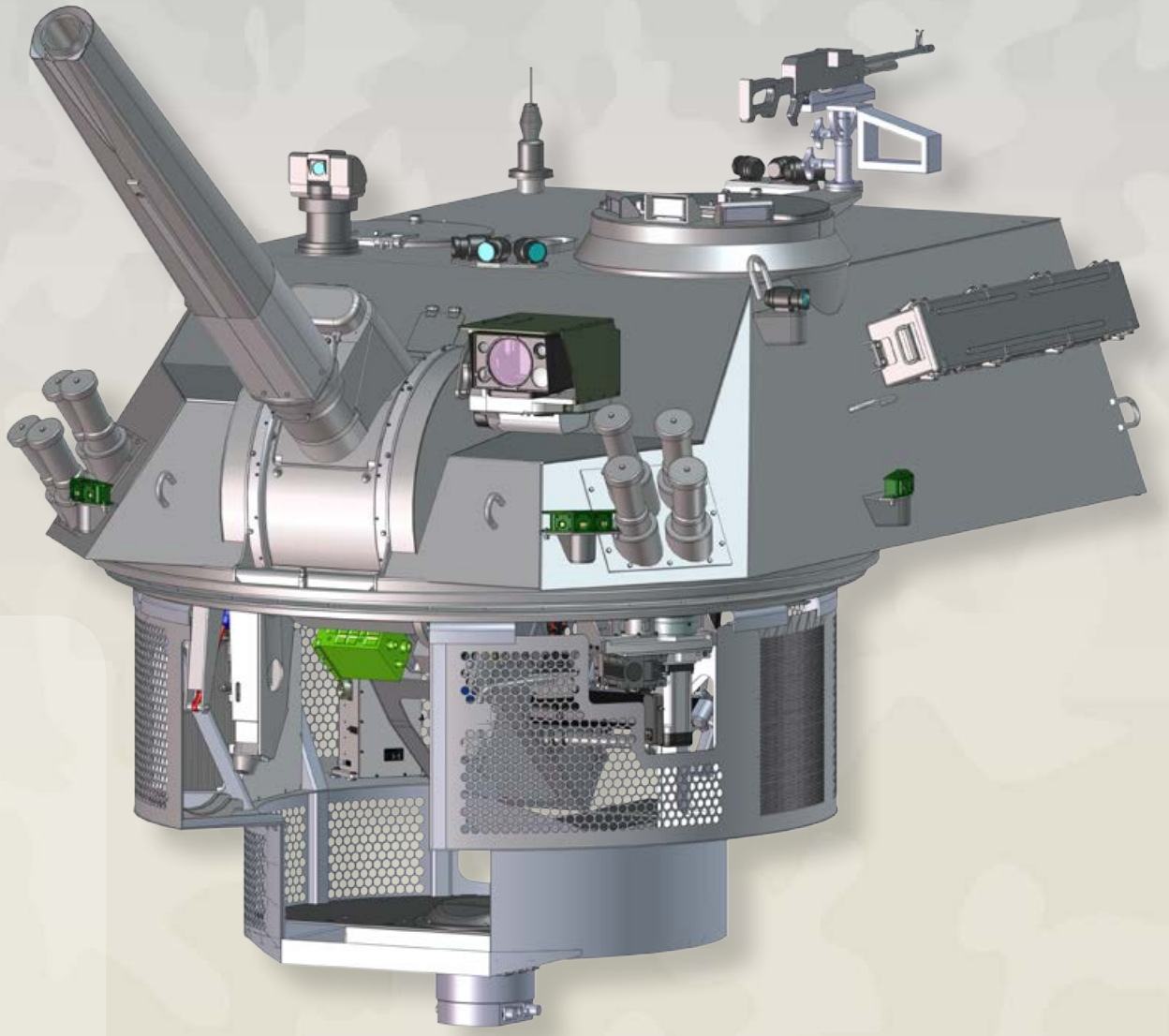
INERTIAL NAVIGATION SYSTEM TALIN 5000 + GPS + ODOMETER

EXTERNAL COMMUNICATION SYSTEM – DIGITAL RADIO STATION VHF RRC 9311 AP

120 mm Mortar Turret

DESIGNATION

120 mm Mortar Turret with possibility to be mounted onto any wheeled or tracked chassis as well as onto vessels (turret's stabilized naval version)
Fully autonomous turret:
– integrated communication, command and fire control system (C4I) based on Fire and Command Control System TOPAZ,
– imaging tactical situation on digital map at commander workstation,
– automatic co-operation with external command and Fire Control Systems of C4I class,
– inertial navigation system TALIN 5000 + GPS + odometer,
– ballistic computer.



TECHNICAL DATA:

Calibre /length of barrel .....120 mm / 3000 mm
Arc of fire - traverse ..... n x 360°
Arc of fire – depression / elevation ..... -3° ÷ +80° min.
Rate of fire ..... 6 ÷ 8 rounds/min.
Direct fire capability
Short firing reaction time
– into action time ..... max. 30 s
– out of action time ..... max 15 s
Max range ..... 10 km
Crew ..... 2 ÷ 3 men
Multiple Rounds Simultaneous Impact / MRSI ....not less than 3 rounds
Secondary armament: 7,62 UKM 2000 D with day/night gun-sight BAZALT

81 mm caliber smoke grenade launchers

120 mm Self-Propelled Mortar

DESIGNATION

- Destroying with indirect, semi-indirect and direct fire enemy's manpower and batteries of artillery,
- To fill with smoke and to light the battlefield,
- To dazzle enemy's observation posts and batteries of artillery,
- Destroying of enemy's light fortifications,
- Performing gaps in enemy's wire entanglements.

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120 mm Self-Propelled Mortar

TRANSPORT

Possibility to transport mortar with various transport means, including air-transport;

CARRIED AMMUNITION

Quantity of carried 120 mm ammunition:
- 20 pcs. in rotary magazine for immediately use;
- Quantity of additional ammunition depends on chassis dimensions:
  In chassis offered by HSW it is 26 rounds.

Exemplary 120 mm mortar turret's carriers

PARAMETER	ALL-PURPOSE TRACKED CHASSIS	ALL-PURPOSE WHEELED CHASSIS
negotiated obstacles - gradient	60%	60%
side slope	30%	35%
vertical	0,4 m	0,5 m
trenches	2 m	2,1 m
fords	1,2 m	1,5 m
max speed on surfaced roads	60 km/h	80 km/h
travel range with full fuel tanks	min. 500 km	min. 500 km
carrier's length	7370 mm	7700 mm
width	2870 mm	2800 mm
ballistic protection	Level I, STANAG 4569*	Level I, STANAG 4569*
Engine	MTU 6V199 TE20	SCANIA DI1249A03P
Engine power	260 kW	294 kW
NBC contamination detection and diagnosis system	TAFIOS B	CHERDES

* modular ballistic protection system as per client's requrements.

Rocket Launcher WR-40 LANGUSTA

PARAMETERS

Weight
total weight (without rockets) ..... 17 100 kg
permissible towed weight ..... 17 000 kg

Dimensions:
length ..... 8 600 mm
width ..... 2 540 mm
height (minimum) ..... 2 740 mm

Negotiated obstacles:
ground clearance ..... 410 mm
fording ..... 1,2 m
gradient ..... 30°
permissible side slope ..... 20°

Travel speed:
maximum speed on road ..... 85 km/h

Travel range:
max. range with full fuel tanks ..... 650 km

CONSTRUCTION

Engine
rated engine power ..... 259 kW
IVECO aifo CURSOR 8, EURO 3, diesel, four stroke, 6-cylinders in the line vertical, turbocharged with intercooler.

Cab
Six persons, hydraulic tiltable, four doors, provides ballistic protection on level 1 to STANAG 4569.

Wheels and tyres
Central inflation system.
Standard tyre size: 14.00 R20 with inserts of flat-run system.

TECHNICAL DATA

calibre ..... 122 mm
number of tubes ..... 40 off
rate of fire (40 rounds)..... 20 s

Maximum range:
– for rockets with HE warheads ..... 42 km
– for rockets with cargo warheads ..... 32 km

Elevation:
– maximum ..... 55°
– minimum ..... 0°
– minimum in limited sector above the cab ..... 11°

Traverse:
– to the right from center line of the chassis ..... 70°
– to the left from center line of the chassis ..... 102°

Laying speed:
with electric drive:
– in horizontal plane ..... 7°/s
– in vertical plane ..... 5°/s
hand-operated drive:
– in horizontal plane ..... 6°/handwheel turn
– in vertical plane ..... 4°/handwheel turn

Components of Fire Control System (FCS)
– Ballistic computer DD9620T
– VHF radio station RRC 9311 AP
– Digital intercom system FONET
– Navigation system Talin 5000

DESIGNATION

Rocket launcher LANGUSTA, designated to arm division of rocket artillery can be used for:
– hunting manpower and destroying firing equipment of enemy in regions of it's concentration,
– demolition of enemy's fortifications and points of resistance,
– disruption and disorganization of enemy's activities.

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Rocket Launcher WR-40 LANGUSTA

BALLISTIC COMPUTER

LAYER'S DISPLAY UNIT

STATIONARY FIRING DEVICE

COMPONENTS OF COMMUNICATION SYSTEM

FILTERING-VENTILATION SYSTEM
STEERING-CONTROL PANEL

MAIN COMPONENTS:

- **All-terrain truck** JELCZ P662D.350-M27 with armoured cab, three-axle, 6x6 drive, load capacity of 10 000 kg, meets ADR requirements.
- **40 barrel artillery part**
- **Fire Control System (FCS) devices**

Rocket Launcher LANGUSTA II

PARAMETERS

Weight:
total weight (without rockets) ..... 23 500 kg

Dimensions:
length..... 10 500 mm
width..... 550 mm
height (minimum)..... 3 330 mm

Negotiated obstacles:
ground clearance ..... 410 mm
fording..... 1,2 m
gradient ..... 30°
permissible side slope..... 20°

Travel speed:
maximum speed on road..... 85 km/h

Travel range:
max. range with full fuel tanks..... 650 km

CONSTRUCTION

Engine:
rated engine power..... 316 kW
IVECO aifo CURSOR 10, EURO III, diesel, four stroke, 6-cylinders in the line vertical, turbocharged with intercooler.

Cab:
Four person cab, hydraulic tiltable, four doors, provides ballistic protection on level 1 to STANAG 4569.

Wheels and tires:
Central inflation system.
Standard tire size: 14.00 R20 with inserts of flat-run system.

TECHNICAL DATA

calibre ..... 122 mm
number of tubes .....40 off
automatic loading/reloading
system capacity..... 40 rockets
total amount of carrying rockets.....80 off
rate of fire (40 rounds)..... 20 s

Maximum range:
– for rockets with HE warheads ..... 42 km
– for rockets with cargo warheads..... 32 km

Elevation:
– maximum ..... 55°
– minimum..... 0°

Traverse:
– to the right from center line of the chassis..... 70°
– to the left from center line of the chassis.....102°

LOADING/RELOADING SYSTEM

First loading of artillery part and loading/reloading system – manually, by crew.
Second loading of artillery part by loading/reloading system – automatic, controlled from the cab (or outside) in time of maximum 5 min.

LAYING SYSTEM

Automatic (autolay): artillery part is setting up on a position (azimuth and elevation) calculated by Fire Control System (FCS).

Assisted: artillery part is setting up on a position (azimuth and elevation) by the internal (or external) control unit. Actual azimuth and elevation data are available on the control display unit.

Manual: in case of system failure, artillery part elevation and azimuth can be controlled manually, by handwheels.

FIRING SYSTEM

New, modern fire control unit BALBA (internal and external version) is based on CZS family control unit series and enables firing of the rockets in sequence or from any barrel (chosen by the commander).
Fire control unit keep a record of loaded rockets (providing information for the commander, which barrels are loaded). New impulse generator is also used to control firing operation (based on KOMUT-10TA family series). Firing protection is provided by the two hardware protection keys, which must be installed on the impulse generator unit (KOMUT) and fire control unit (CZS).
Fire control unit can be connected to FCS software, enabling automation of creating records from firing operation.

DESIGNATION

Rocket launcher LANGUSTA II, designated to arm division of rocket artillery can be used for:
– hunting manpower and destroying firing equipment of enemy in regions of it's concentration,
– demolition of enemy's fortifications and points of resistance,
– disruption and disorganization of enemy's activities.

Rocket Launcher LANGUSTA II

MAIN COMPONENTS

- All-terrain truck JELCZ with 4-person cab (providing ballistic protection on level 1 to STANAG 4569), four-axle, 8x8 drive, meets ADR requirements,
- 40 barrel artillery part, controlled by FCS or automatic – from the cab or outside,
- Automatic loading/reloading system for additional 40 rockets,
- Fire Control System (FCS) and digital communication system,
- New, modern fire control unit.

FIRE CONTROL SYSTEM

- Ballistic computer DD9620T with FCS software,
- New, modern fire control unit PALBA (stationary and remote version),
- Artillery part and loading/reloading system control unit, directly connected to FCS (mounted inside the cab and outside),
- Inertial navigation system TALIN 5000,
- Digital VHF radio station RRC-9311AP,
- Digital intercom system FONET

BALLISTIC COMPUTER AND NEW, MODERN FIRE CONTROL UNIT

COMPONENTS OF COMMUNICATION AND FCS

EXTERNAL ARTILLERY PART AND LOADING/RELOADING SYSTEM CONTROL UNIT

INTERNAL ARTILLERY PART AND LOADING/RELOADING SYSTEM CONTROL UNIT

FILTERING-VENTILATION SYSTEM. CONTROL UNIT

122 mm Self-Propelled Howitzer GOZDZIK

PARAMETERS

Weight
weight of vehicle ..... 15 700 kg

Crew
crew ..... 4 men

Dimensions
length ..... 7 620 mm
width ..... 2 850 mm
height ..... 2 725 mm

Negotiated obstacles
track base ..... 2 500 mm
ground clearance ..... 400 mm
average ground pressure ..... 0,05 MPa
gradeability ..... 35°
tilt angle ..... 25°

Travel speed
maximum travel speed ..... 60 km/h
maximum floating speed. ..... 4,5 km/h

Travel range
max. road range (without refuelling) ..... 500 km

Engine
engine power ..... 220 kW

TECHNICAL DATA

calibre ..... 122 mm

Arc of fire:
– depression/ elevation ..... - 3° to + 70°
– traverse ..... n x 360°

maximum range ..... 15 200 m
maximum rate of fire ..... 4-5 rounds/min.

Ammunition stowed in vehicle:
– with high explosive projectiles ..... 35 pcs
– with high explosive anti-tank projectiles ..... 5 pcs

Ammunition:
– 122 mm round with HE shell,
– 122 mm armour-piercing round.

EQUIPMENT

– periscope sight,
– day and night observation devices for commander and driver,
– external and internal communication means,
– filter-ventilation units (one in driver's compartment another one in turret),
– heater,
– engine preheater.

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122 mm Self-Propelled Howitzer GOZDZIK

DESIGNATION

- hunting manpower and destroying firing equipment of enemy,
- direct support of units fighting off attacking enemy,
- fighting with enemy artillery and mortars,
- making passages in mine fields and wire entanglements,
- smoking/ lighting of battlefield and blinding the observation posts.

Vehicle for Repair of Armament and Electronics VRAE

DESIGNATION

The workshop provides technical support for artillery battalion REGINA in scope of: field repairs of armament and electronics, support for maintenance works, delivery of LRU and spare parts.

Vehicle for Repair of Armament and Electronics VRAE

MAIN COMPONENTS OF THE VEHICLE ARE:

JELCZ P662D.35 truck chassis with JELCZ 144 4-man armoured cab, adjusted to drive on off-roads, in drive configuration of 6x6, equipped with:
– frame allowing fixing 1C 20' container,
– winch,
– towing device and tow bar,

1C type 20 ft. container for a workshop with modular equipment, equipped with hydraulic jacks allowing quick unloading and loading onto the chassis, containing:
– technical compartment,
– work compartment.

TECHNICAL AND OPERATING DATA

Weight
curb weigh ..... 14 500 kg
permissible weight of a towed trailer ..... 16 000 kg

Crew
crew ..... 4 men

Dimensions
length ..... 9 895 mm
width ..... 2 600 mm
height ..... 3 850 mm

Negotiated obstacles
ground clearance ..... 398 mm
angle of approach ..... 34°
angle of departure with the rear bumper raised ..... 26°
angle of departure with the rear bumper lowered ..... 11°
gradeability ..... 25°
side slope ..... 15°
fordability ..... 1,0 m

Travel speed
maximum speed (limited by speed limiter) ..... 85 km/h

Travel range
max. road range (without refuelling) ..... 650 km

TRUCK CHASSIS ARMOURED CAB

Chassis type
JELCZ P662D.35 truck chassis with JELCZ 144 4-man armoured cab.

Engine
Diesel, 6 cylinders in-line, turbocharged.
max. power output ..... 259 kW.

Gear-box
combined with the engine, synchronized, reverse gear non-synchronized, 16 gears, operated mechanically.

Tires
14.00R20 wide-profile with an off-road or all-purpose tread. Central Tire Inflation System.

Filtering-ventilating unit
Located in the cab. Overpressure at air rate of flow of 100 m^3/h 200 Pa.

WORKSHOP IN THE CONTAINER

1 C type, 20 ft workshop container with modular equipment.
Overall dimensions:
– length ..... 6 058 mm
– width ..... 2 438 mm
– height ..... 2 438 mm

Technical compartment
equipped with the following modules:
– air conditioning,
– electrical power supply and batteries,
– filtering-ventilating and drying systems,
– auxiliary power unit - 12 kVA output power and nominal voltage of 3x400 V AC, 50Hz,
– air compressor,
– self-levelling container lifting system.

Work compartment
Modular built tables and lockers on both sides of the compartment. Door with a window in the rear and side right wall, window with blinds in LH wall, basic dome lights, black-out lighting controlled by sensors in doors, local lighting of work stations, air conditioner, heater, filtering-ventilating unit, electrical sockets for 230 V AC, outlet of compressed air.

Equipped with the basic and specialist tools and workshop devices.

Device for filling of hydraulic systems - Located in the work compartment. Oil tank capacity – 10 dm^3.

Device for nitrogen filling - Mounted in a chamber which is opened from the outside, on RH side of the container.

Hydraulic jacks
For quick unloading and loading the container onto the chassis, electro-hydraulic remote controlled or with the use of a control panel located in the technical compartment.

Wheeled Maintenance and Recovery Vehicle WMRV

MAIN COMPONENTS OF THE VEHICLE ARE:

JELCZ P662D.35 truck chassis with JELCZ 144 4-man armoured cab, adjusted to drive on off-roads, in drive configuration of 6x6, equipped with:
- an auxiliary frame to allow fixing 1C 20' container,
- winch,
- towing device and tow bar,
- NBC Contamination Detection System, TAFIOS-B,
- 7.62 mm Machine Gun Post,
- on-board Digital Intercom System FONET.

1C type 20 ft. container for a workshop with modular equipment, equipped with hydraulic jacks allowing quick unloading and loading onto the chassis, containing:
- technical compartment,
- work compartment.

TRUCK CHASSIS ARMOURED CAB

Chassis type
JELCZ P662D.35 truck chassis with JELCZ 144 4-man armoured cab.

Engine
Diesel, 6 cylinders in-line, turbocharged.
max. power output ..... 259 kW.

Gear-box
combined with the engine, synchronized, reverse gear non-synchronized, 16 gears, operated mechanically.

Tires
14.00R20 wide-profile with an off-road or all-purpose tread. Central Tire Inflation System.

Filtering-ventilating unit
located in the cab. Overpressure at air rate of flow of 100 m^3/h 200 Pa.

WORKSHOP IN THE CONTAINER

1C type 20 ft. workshop container with modular equipment.
Overall dimensions:
length..... 6 058 mm
width..... 2 438 mm
height..... 2 438 mm

Technical compartment
equipped with the following modules:
- air conditioning,
- electrical power supply and batteries,
- filtering-ventilating and drying systems,
- on-board auxiliary power unit - 10 kVA output power and nominal voltage of 3x400 V AC, 50Hz,
- portable auxiliary power unit - 12 kVA output power, 230 V, 50Hz,
- air compressor,
- self-levelling container lifting system.

Work compartment
Modular built tables and lockers on both sides of the compartment. Door with a window in the rear and side right wall, window with blinds in LH wall, basic dome lights, black-out lighting controlled by sensors in doors, local lighting of work stations, air conditioner, heater, filtering-ventilating unit, electrical sockets for 230V AC, outlet of compressed air.

Equipped with the basic and specialist tools and workshop devices.

Device for nitrogen filling - Mounted in a chamber which is opened from the outside, on RH side of the container.

Hydraulic jacks
For quick unloading and loading the container onto the chassis, electro-hydraulic remote controlled or with the use of a control panel located in the technical compartment.

Wheeled Maintenance and Recovery Vehicle WMRV

DESIGNATION

The workshop provides technical support for artillery company in scope of: field repairs of armament and electronics, support for maintenance works, delivery of LRU and spare parts.

Artillery Battalion Ammunition Resupply Vehicle ARV

DESIGNATION

The vehicle's designation is to supply 155 mm ammunition for artillery battalion. Its' main functions are both transportation as well as mechanized loading and unloading of ammunition containing pallets.

Artillery Battalion Ammunition Resupply Vehicle ARV

MAIN COMPONENTS OF THE VEHICLE ARE:

- **JELCZ P882.53 truck chassis** with 2-man armoured cab, equipped with a hook container loading system,
- **Bodywork built upon 20 ft flat-rack type** container platform basis equipped with sideboards, bows, canvas cover and slots for special pallets,
- **6 special pallets** for the ammunition and special equipment. Number of carried ammunition: 96 pieces.

TECHNICAL AND OPERATING DATA

Weight
curb weight ..... 18 500 kg
payload ..... 13 000 kg
permissible weight of a towed trailer ..... 12 000 kg

Dimensions:
length ..... 10 600 mm
width ..... 2 550 mm
height ..... 3 670 mm

Negotiated obstacles:
ground clearance ..... 389 mm
ramp over angle ..... 25°
angle of approach ..... 35°
angle of departure ..... 35°
gradeability ..... 30°
side slope ..... 20°
fordability ..... 1.0 m

Travel speed:
maximum road speed (limited by speed limiter) ..... 85 km/h

Travel range:
max. road range (without refuelling) ..... 650 km

TRUCK CHASSIS WITH ARMOURED CAB

Type of the chassis
JELCZ P882.53 chassis with 2-man armoured cab.

Engine
Diesel, 6 cylinders, in-line, turbocharged.
max. power output ..... 392 kW

Gear-box
combined with the engine, synchronized, reverse gear non-synchronized, 16 gears, operated mechanically.

Tires
14.00R20 wide-profile with an off-road or all-purpose (or universal) tread. Central Tire Inflation System. Equipped with special Beadlock inserts, which enable driving with lowered pressure in tires and in result vehicle's mobility in difficult terrain is enhanced.

Filtering-ventilating unit
Located in the cab. Overpressure at air rate of flow of 100 m^3/h 200 Pa

Hook container loading system ..... MK IV

BODYWORK

Vehicle's bodywork consists of:
- 20 ft flat-rack type container, adapted for hook loading system, special slots on the floor for quick and easy mounting of 155 mm artillery ammunition containing pallets,
- tailboards: front board fixed, side boards split and can be opened, rear board can be opened,
- bails fixed in container's base, with possibility to be disassembled,
- canvas cover, split on both side boards.

PALLETS

Vehicle equipped with 6 special pallets designed for transportation of 155 mm artillery ammunition.
Following quantities of ammunition and special equipment can be carried:
- 16 projectiles with transport fuses,
- 16 modular charges in transport tubes,
- necessary quantity of fuses and primers in producer's packaging,
- necessary quantity of base bleed units in producer's packaging,
- auxiliary equipment for setting the depth of container with projectile and for projectile's arming.

Pallets are equipped in blocking mechanisms, designed to lock pallets on container's platform. Pallets' structure allows them to be loaded or unloaded with forklift truck or hoisting crane and lifting sling.

Artillery Company Ammunition Resupply Vehicle ARV

MAIN COMPONENTS OF THE VEHICLE ARE:

- **JELCZ P882.53 truck chassis** with 2-man armoured cab, equipped with a hook container loading system, NBC Contamination Detection System, TAFIOS-B,7.62 mm Machine Gun Post and on-board Digital Intercom System FONET.
- **Bodywork built upon 20 ft flat-rack type,** container platform basis equipped with sideboards, bows, canvas cover and slots for special pallets,
- **Special pallets** for the ammunition and special equipment. Number of carried ammunition: 120 pieces.

TECHNICAL AND OPERATING DATA

length ..... 10 450 mm
width ..... 2 550 mm
height ..... 3 660 mm
ground clearance ..... 389 mm

TRUCK CHASSIS WITH ARMOURED CAB

Type of the chassis
JELCZ 882.53 chassis with 2-man armoured cab.
Truck chassis with hook self-loading system and cab.
Engine
- Diesel, 6 cylinders, in-line, turbocharged.
- max. power output ..... 392 kW

Gear-box
- combined with the engine, synchronized, reverse gear non-synchronized, 16 gears, operated mechanically.

Tires
- 14.00R20 wide-profile with an off-road or all-purpose (or universal) tread. Central Tire Inflation System. Equipped with special Beadlock inserts, which enable driving with lowered pressure in tires and in result vehicle's mobility in difficult terrain is enhanced.

Filtering-ventilating unit
- located in the cab. Overpressure at air rate of flow of 100 m^3/h 200 Pa.

Hook container loading system ..... Typ MK IV

BODYWORK

Vehicle's bodywork consists of:
- 20 ft flat-rack type container, adapted for hook loading system, special slots on the floor for quick and easy mounting of 120 mm ammunition containing pallets,
- Tailboards: front board fixed, side boards split and can be opened, rear board can be opened,
- Bails fixed in container's base, with possibility to be disassembled,
- Canvas cover, split on both side boards.

PALLETS

Vehicle equipped with 6 special pallets designed for transportation of 120 mm ammunition.
Thirty 120 mm projectiles can be carried on each pallet.
Pallets are equipped in blocking mechanisms, designed to lock pallets on container's platform. Pallets' construction allows them to be loaded or unloaded with forklift truck or hoisting crane and lifting sling.

DESIGNATION

The vehicle's designation is to supply 120 mm ammunition for artillery company. Its' main functions are both transportation as well as mechanized loading and unloading of ammunition containing pallets.

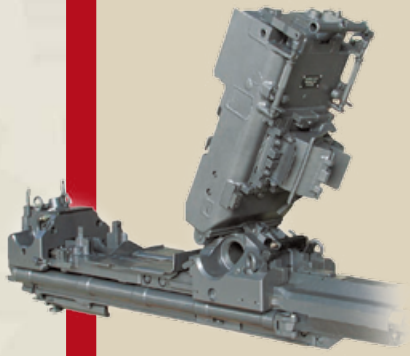
HSW
STALOWA WOLA

35 mm Automatic Cannon KDA

DESIGNATION

35 mm cannon KDA is intended for installation in anti-aircraft systems for fighting with:

– air targets at the distance ..... up to 4 000 m
– land targets at the distance ..... up to 2 500 m



TECHNICAL DATA

calibre	35 mm
weight	675 kg
barrel length	3 150 mm
muzzle velocity	1 385 m/s
pressure in barrel	380 MPa
rate of fire	550 rounds/min.
recoil force	29,4 kN
recoil stroke	55 mm
length of round	370 – 387 mm
weight of round	1 460 – 1 562 g

98 mm Mortar M98

TECHNICAL DATA

calibre ..... 98 mm
minimum range..... 400 m
maximum range..... 7 000 m
average number of effective splinters (weight > 1.7 g) ..... ~ 4 000
sight MPM-44M/04 ..... 6 000 m
effective lethal radius of HE shell ..... 75 m
Rate of fire:
– with aiming correction..... 8-10 rounds./min.
– without aiming correction ..... 15 rounds/min
launching spontaneous or by trigger mechanism.
maximum weight of round..... 10 kg

Weight
in combat position ..... 135,4 kg
with transport cart ..... 300 kg

EQUIPMENT
– transport cart,
– set of spare parts, tools and instruments.

AMMUNITION
– 98 mm high explosive round,
– 98 mm lighting round,
– 98 mm smoke round.

DESIGNATION

As a basic firing mean of mechanized troops, paratroops and mountain infantry is used mainly to:
– destroy and overpower of manpower and combat equipment of the enemy concentration areas,
– destroy of enemy light field fortifications,
– destroy of enemy armoured combat equipment,
– make passages in engineering wire barriers,
– smoking/lighting of battlefield and blinding the observation posts,
– battlefield illumination.

HSW
STALOWA WOLA

120 mm Towed Mortar

TECHNICAL DATA

calibre ..... 120 mm
minimum range..... 480 m
maximum range (assisted) ..... 7 100 m (9 000m)
Rate of fire:
– with aiming correction..... 8-10 rounds/min.
– without aiming correction ..... 15 rounds/min
Launching spontaneous or by trigger mechanism.
maximum weight of round ..... 17,9 kg

Weight
– in combat position..... 257 kg
– with transport cart ..... 414 kg

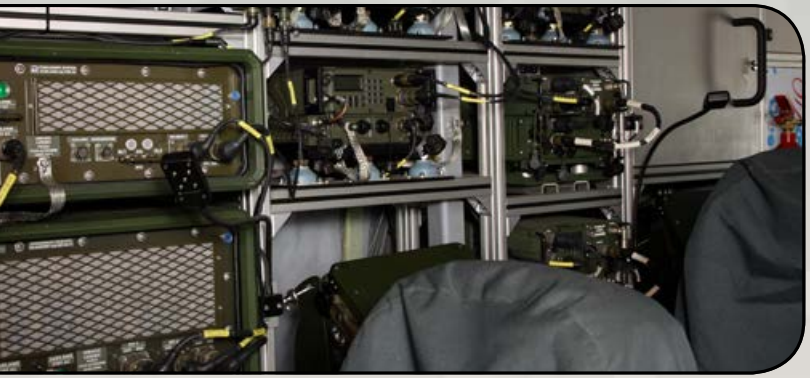
EQUIPMENT
– transport car,
– individual set of spare parts, tools and accessories.

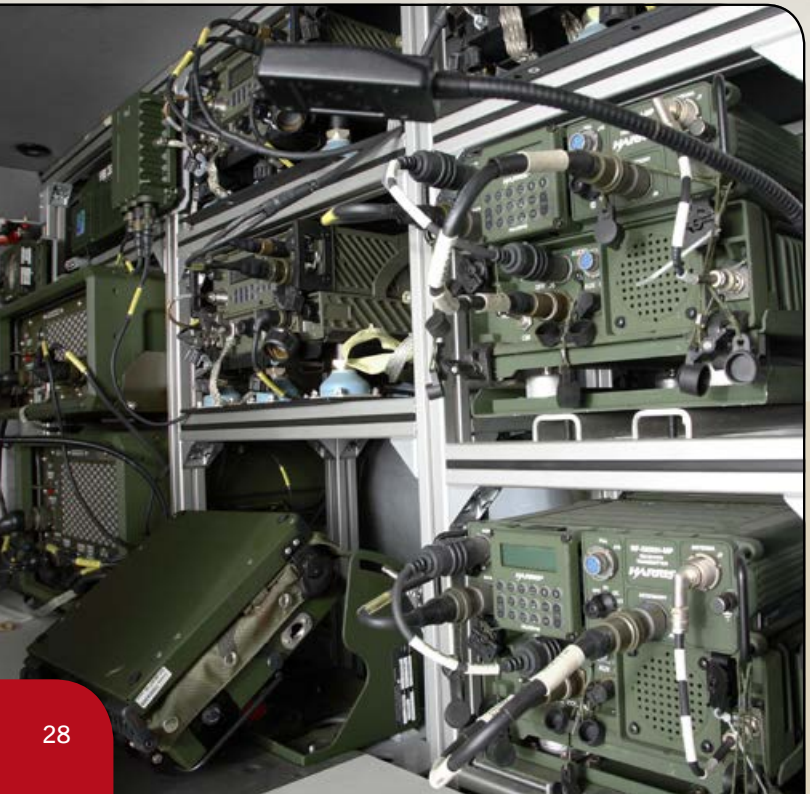
AMMUNITION
– high-explosive,
– illuminating,
– incendiary,
– smoke.

DESIGNATION

As a basic firing mean of mechanized troops, paratroops and mountain infantry is used mainly to:
– destroy and overpower of manpower and combat equipment of the enemy concentration areas,
– destroy of enemy light field fortifications,
– destroy of enemy armoured combat equipment,
– make passages in engineering wire barriers,
– smoking/lighting of battlefield and blinding the observation posts,
– battlefield illumination.

Command-Staff Vehicles CSV and Command Vehicles CV





DESIGNATION

Command-Staff and Command Vehicles are intended for providing:
- work stations for a Commander of Artillery Battalion, Chief of Staff, Commander of Battery, Commander of Platoon and cooperating with them functional persons;
- command and fire control decision making information system for the battalion artillery level,
- communications.

Command-Staff Vehicles CSV and Command Vehicles CV

MAIN COMPONENTS OF THE VEHICLE ARE

All-purpose base chassis,

Fire Control System and Telecommunication / Computer System

PARAMETERS

Weight
total weight: ..... 17 000 kg

Crew
CSV..... 4+1 persons
CV..... 2+1 persons

Dimensions
length – max. ..... 7 405 mm
width – max. ..... 3 025 mm
height – max. ..... 2 790 mm

Negotiated obstacles:
gradient capability.....60%
side slope capability.....30%

Travel speed
max. traveling speed ..... 60 km/h

Travel range
travel range with full fuel tanks..... 600 km

Operating temperature
low..... -30°C
high .....+50°C

CONSTRUCTION

Engine
nominal power output ..... 260 KW
max. torque ..... 1 730 Nm
exhaust gases emission norm ..... EURO III
automatic transmission.....LSG 1000

Brake system
hydraulic dual circuit service brake system with brake capacity to meet the vehicle weight of 18 tons and mechanically actuated parking brake.
braking deceleration ..... 5 m/s^2

EQUIPMENT

Equipment of the chassis:
- G4 Drive System Kit – “power-pack” type,
- auxiliary Power Unit (PZA.13-01, v.R4),
- environmental Control System (filtering, ventilation, air conditioning), type of UFK.B2-01, v.R4,
- Self-Covering and Laser Warning System, "OBRA 3" SSP-1C,
- NBC Contamination Detection System, TAFIOS-B,
- Fire Extinguishing and Explosion Suppression Systems (KIDDE-DEUGRA),
- open 7.62 mm Machine Gun Post with shields,
- two heaters, Air Top EVO 5500,
- hull with running system and ballistic protection – Level I as per STANAG 4569 Annex A and B.

Equipment of the Fire Control System and Telecommunication / Computer System:
- on-board digital intercom system (FONET)
- on-board external communication kit:
  - two HF radio stations (RF5800H),
  - three VHF radio stations (RRC9311AP),
- power supply units for FCS and communications,
- workstation and system components:
  - Vehicle Terminal (DD9620T),
  - Computer Module (MK16A),
  - GPS,
  - server DD9620T-S,
  - software FCS TOPAZ,
  - telephone-alarm pulpits.

Command Post Vehicle - wheeled chassis CPV

CONSTRUCTION

Drive System Kit – “power-pack” type.
SCANIA DI1249A03P Engine with automatic gear-box, seven gears forward, one reverse.

EQUIPMENT

- Computer-aided Fire Control System providing automated process of firing procedures,
- Secondary armament - 7,62 mm MG,
- Self-Covering and Laser Warning System,
- Armour with balistic protection of Level I as per STANAG 4569 (Annex A and B),
- Day / night observation devices for two crew members including the Commander,
- filtering-ventilating device,
- NBC protection system,
- Decontamination Set ZOD-2,
- Fire Extinguishing System in the engine compartment and Explosion Supression System in the crew compartment,
- Front and rear towing eyes as per STANAG 4019,
- Winch for self-evacuation with a rope led to the front and rear,
- Intercom and radiostation together with GPS,
- Inertial Navigation System TALIN 5000,
- Auxiliary Power Unit,
- Public roads travel enabling equipment,
- Kit of standard and special tools for maintence and repairs,
- Kit of basic spare parts and operating materials for the chassis and equipment,
- Vehicle’s camouflaging kit,
- First aid medical kit,
- mounting fixtures for crew members’ equipment.

DESIGNATION

Vehicle’s designation is to perform tasks in the scope of
- fire control,
- command post points deployment,
- collecting and handling of all kinds of reconnaissance information necessary for enemy objects’ destruction (i.e. shooting conditions data).

Platoon Commander’s Command Post Vehicle can take control in place of Company Comander’s Command Post Vehicle in case if the second one is destroyed.

HSW
STALOWA WOLA

Command Post Vehicle - tracked chassis CPV

PARAMETERS

Dimensions
length – max. .....7 405 mm
width – max. .....3 025 mm
height – max.. .....2 790 mm

CONSTRUCTION

Engine
nominal power output ..... 260 KW
max. torque..... 1 730 Nm
exhaust gases emission norm ..... EURO III

Transmission
automatic .....LSG 1000

Brake system
hydraulic dual circuit service brake system and mechanically actuated parking brake.

EQUIPMENT:

- Computer-aided Fire Control System providing automated process of firing procedures,
- Secondary armament - 7,62 mm MG,
- Self-Covering and Laser Warning System,
- Armour with balistic protection of Level I as per STANAG 4569 (Annex A and B),
- Day / night observation devices for two crew members including the Commander,
- filtering-ventilating device,
- NBC protection system,
- Decontamination Set,
- Fire Extinguishing System in the engine compartment and Explosion Supression System in the crew compartment,
- Intercom and radiostation together with GPS,
- Auxiliary Power Unit,
- Public roads travel enabling equipment,
- Kit of standard and special tools for maintence and repairs,
- Kit of basic spare parts and operating materials for the chassis and equipment,
- Vehicle's camouflaging kit,
- mounting fixtures for crew members' equipment.

DESIGNATION

Vehicle's designation is to perform tasks in the scope of
- fire control,
- command post points deployment,
- collecting and handling of all kinds of reconnaissance information necessary for enemy objects' destruction (i.e. shooting conditions data).

Platoon Commander's Command Post Vehicle can take control in place of Company Comander's Command Post Vehicle in case if the second one is destroyed.

Light Armoured Multipurpose Tracked Tractor MTLB

PARAMETERS

Weight
Weight ..... 10 500 kg

Crew
seating capacity ..... 2 + 11

Dimensions
length ..... 6 980 mm
width ..... 2 950 mm
height ..... 1 990 mm

Loading capacity
rated ..... 1 650 kg
maximum ..... 2 150 kg

Negotiated obstacles
track base ..... 2 500 mm
ground clearance ..... 395 – 415 mm
average ground pressure ..... 0,045 mpa

Travel speed
maximum travel speed ..... 60 km/h
maximum floating speed ..... 5 – 6 km/h

Travel range
travel range by fuel capacity ..... 500 km

Time of digging hiding pit
Time of digging hiding pit ..... 1,5 – 2 h

Engine
engine power ..... 176,5 kW

EQUIPMENT

STANDARD EQUIPMENT
- revolving turret with 7.62 mm machine gun,
- self entrenching equipment,
- filter-ventilation unit,
- intercom,
- heater,
- engine preheater,
- towing hook,
- individual set of spare parts, tools and instruments.

OPTIONAL EQUIPMENT
- radio station VHF,
- driver's night vision,
- dosimeter,
- deactivation and decontamination set,
- 12.7 mm machine gun.

DESIGNATION

- transportation of persons and loads,
- towing object of total weight 6,5 t,
- transport of ammunition to the units directly involved in fighting and evacuation people and equipment,
- fitting various special equipment,
- digging trenches in ground for themselves and for towed objects.

HSW
STALOWA WOLA

Track Pads

DESIGNATION

Track pads are used in tracked vehicle during travelling on public paved roads.
The pads are applicable for forged tracks (having pins with silent blocks) and steel cast. The pads are used in GOZDZIK, KROTON, MTLB, MORS, HORS and others.

PARAMETERS

Track pads can be used in winter and summer condition at ambient temperature from minus 45°C to plus 55°C.
Mileage in any conditions amounts to min. 1500 km.

Pads keep its use properties during 3-years storage. Pads can be stored in covered stores, not heated, and in open air.
Application of pads has no negative influence on vehicle operational norms.
No maintenance is required during period of operation.

Pads for forged tracks

length	290 mm
width	98 mm
height	82 mm
weight	2,8 kg
colour	black rubber

Pads for cast track

length	292 mm
width	82 mm
height	35 mm
weight	1,8 kg
colour	black rubber

Scattered Mine Laying Platform BAOBAB

MAIN COMPONENTS

All-terrain truck chassis.
4 or 6 launcher units. Each launcher unit can be loaded with 20 launch tubes (5 mines in each launch tube)

PARAMETERS

Version with four launcher units:
weight of unloaded platform ..... 3 420 kg
weight of the platform loaded with mines ..... 5 500 kg
permissible load capacity ..... min. 7 000 kg
required length of the platform. ..... 3 500 mm

Version with six launcher units:
weight of unloaded platform ..... 4 620 kg
weight of the platform loaded with mines ..... 6 700 kg
permissible load capacity ..... min. 9 000 kg
required length of the platform ..... 5 500 mm

ALL-TERRAIN TRUCK CHASSIS

All terrain truck medium load chassis - JELCZ P662.35G34, with 2 men armoured cab equipped with berth.

Weight
Weight (with mines) ..... 21 020 kg

Dimensions
Overall length ..... 9 400 mm
Height (up to launchers) ..... 3 100 mm
Width (march mode) ..... 2 550 mm
Width (combat mode) ..... 2 850 mm
Ground clearance ..... 415 mm

Negotiated obstacles:
Angle of approach ..... 30°
Angle of departure ..... 30°

Engine
Engine power ..... 259 kW with 2 400 rt/min.

LAUNCHERS

Version with four launcher units:
time of re-loading for one unit of mines ..... < 20 min.
time of scattered laying using one unit of mines ..... < 15 min.

Version with six launcher units:
time of re-loading for one unit of mines ..... < 30 min.
time of scattered laying using one unit of mines ..... < 22 min.

Distance of laying
from center line of the vehicle ..... 0 to 90 (on both sides)
speed of laying ..... from 5 to 25 km/h
possibility of launching on sides and the rear of the vehicle

Mines:
with immediate action MN123.1
with delayed action MN123.2
weight of mine cassette containing 5 mines ..... 22,8 – 23 kg

STEERING SYSTEM

Automatic or hand operated.
In automatic mode computer calculates launchers' setting and keeps launching frequency during vehicle's travel. Additionally, minefield parameters and minefield corners' coordinates are recorded and displayed onscreen on computer's digital map. All these data can be sent via radio station to higher command level.

Scattered Mine Laying Platform BAOBAB

DESIGNATION

The BAOBAB enables deploy of barrier minefields with different size, density of laying and time of selfdestruction.
Required parameters of the resultant barrier are obtained by suitable programming of the control unit in automatic or manual mode and positioning of launchers.
Additionally, Scattered Mine Laying Platform can be installed on various chassis of medium load capacity all-terrain vehicles.

STANDARD EQUIPMENT

- on-board computer,
- imaging terminal with digital map
- junction box,
- cables,
- internal comunication system FONET,
- radiostation VHF RRC 9311AP,
- GPS and odometer,
- 81 mm smoke grenade launchers (8 off),
- control unit for smoke grenade launchers (delivered separately to install in the carrier vehicle cab),
- tester for the mine cassette (delivered separately as an accessory),
- simulator (option).

Scattered Mine Laying Vehicle KROTON

MAIN COMPONENTS:

High speed tracked chassis
Launchers – 4 off. Each launcher unit can be loaded with 20 launch tubes (5 mines in each launch tube)

PARAMETERS

Weight
combat weight ..... 15 870 kg

Crew
crew ..... 2 men

Dimensions
length ..... 7 450 mm
width ..... 2 950 mm
height (march mode) ..... 2 910 mm
height (combat mode) ..... 2 470 mm

Negotiated obstacles
track base ..... 2 500 mm
ground clearance ..... 350 mm
average ground pressure ..... 0,04 MPa
gradeability ..... 35°
side slope angle ..... 25°

Travel speed
max. travel speed ..... 60 km/h

Travel range
travel range with full fuel tanks ..... 500 km

Engine
engine power ..... 220 kW

TECHNICAL DATA

One on-board unit of mines:
– 80 mine cassettes containing 400 antitank mines
re-loading time for one unit of mines ..... < 40 min.
time of mine laying using one unit of mines ..... < 15 min.
distance of laying from center line of vehicle ..... 30 to 90 m
speed of mine laying ..... 5 to 25 km/h
possibility of launching towards sides and rear of the vehicle

Mines:
– with immediate action MN123.1
– with delayed action MN123.2

Scattered Mine Laying Vehicle KROTON

DESIGNATION

Scattered mine laying vehicle is intended to set scattered antitank barrier minefields by engineering sub-units of tactical level. The KROTON enables set of barrier minefield with different size, density of laying and time of selfdestruction. Required parameters of the barrier are obtained by suitable programming of the control unit, positioning of launchers and adequate travelling speed during laying of minefield.

EQUIPMENT

- control unit,
- tester,
- antitank shaped charge mines (400 pcs),
- machine gun 12,7 mm,
- heater,
- fire suppression system automatic or hand controlled,
- day/night observation devices,
- radiometer DPO,
- internal/external communication means,
- deactivation and decontamination set.

Universal Engineering Machine Backhoe Loader 9.50

PARAMETERS

weight with bucket ..... 8 850 kg
weight with forks ..... 8 280 kg

overall wheel width ..... 2,3 m
– machine length (with folded excavator equipment) ..... 6 280 mm
– machine adapted for air transport plane ..... C – 130
Machine in transportation mode does not exceed limiting outline on railways and roads.

maximum speed .....37,5 km/h

Capability to interrupted work by 10 hours under medium duty.
– Time to convert from transportation mode to working mode with any equipment ..... max. 10 min.

Machine is capable to work on slopes:
– longitudinal – front/ rear 25º
– cross – left/ right 15º

Machine prepared to work in temperature range ....from -30ºC to +40ºC

CONSTRUCTION

In machines are applied modern, low emission engines meeting requirements of exhaust gases emission according to UE97/68EC EU Directive, phase III A and Tier 3 U.S. EPA.
engine power.....74/100,6 kW/KM

Attractive and contemporary shape of cab and superstructure satisfies requirements of today's user, meeting at the same time all health and safety standards. Operator's productivity increases comfortable, safety cab designed in mind of comfort and ergonomic.

Standards met by product:
– machine has road homologation and meets requirements of European Standards in the scope of safety (CE).
– consumables according to NATO codification

Loader equipment with quick connectors
All-purpose bucket with 5 teeth.
– bucket capacity ..... 1 m^3
– digging depth of horizontally set bucket .....80 mm
– unloading height ..... 2,7 m
– diameter of lifted tree trunks ..... ø 350 mm
– Indicator of bucket leveling
Fork lift equipment with quick connectors
– lifting height ..... od 0,05 to 3,2 m
– lifting capacity ..... 2 000 kg
– range of forks front out of wheel ..... 1 m

Excavating equipment
– bucket width..... 800 mm
– bucket capacity..... 0,24 m^3
– digging depth (standard boom)..... 5,49 m
– max. range of digging on ground level from turning axle ..... 5 790 mm
– unload height..... 3,6 m
– lifting capacity at max. outreach ..... 600 kg

Due to application of various bucket and shovels as well as additional equipments the backhoe loader is a multifunctional machine.

STANDARD EQUIPMENT

Set of product equipment devices:
– loading equipment,
– forklift equipment,
– excavator equipment,
– travelling stabilization system,
– cab equipped with fixtures for small arms,
– cab equipped with electric system for installing radiotelephone type R3501 and night vision passives goggles,
– compressor with pressure hose,
– set of sapper tools,
– catches for transport of camouflage net,
– catches for fitting grid shields,
– special rear convoy lamp.

Universal Engineering Machine Backhoe Loader 9.50

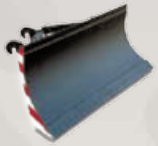
OPTIONAL EQUIPMENT

loading bucket

multipurpose bucket

grab for tree trunks

hydraulic quick connector


dozer blade

snow blade

forks

backhoe bucket capacity 0,10 m³

backhoe bucket capacity 0,13 m³

backhoe bucket capacity 0,16 m³

backhoe bucket capacity 0,24 m³

bucket for slopping

trapezoidal bucket

hydraulic hammer

sack-filling machine

DESIGNATION

- loading on transport means,
- moving loose and clod materials,
- making trenches of various sections and grounds of different density,
- ground levelling,
- handling the pallets and containers with fork-lift equipment,
- dozing and dumping the ground,
- snow removing from squares and roads,
- transportation of tree trunks and building elements on short distances,
- other engineering works.

Loader - Dozer SL-34 C

DESIGNATION

- handling the pallets and containers with fork-lift equipment, loading on transport means,
- cutting soil from slopes,
- moving loose and clod materials, dozing and dumping the ground,
- making trenches of various sections and grounds of different density,
- ground leveling,
- filling trenches, craters and shelters in,
- snow removing from squares and roads,
- transportation of tree trunks and building elements on short distances,
- other engineering works.

PARAMETERS

Machine weight:
with bucket ..... 22 830 kg
with forklift equipment..... 22 310 kg

Dimensions and gradeability
length with bucket/ forks ..... 8 380/9 595 mm
width ..... 2 982 mm
height with cab..... 3 607 mm
wheel base ..... 3 145 mm
wheel track ..... 2 090 mm
turning angle left/ right ..... 40°
ground clearance ..... 450 mm

lifting capacity with bucket/ forks..... 7,6/8 t
bucket capacity ..... 3 m^3
maximum lifting height at discharge angle 45° ..... 2 950 mm
Forks length:
standard ..... 1 600 mm
with extension option ..... to 2 300 mm
maximum height of lifting ..... 3 800 – 4 000 mm

maximum speed ..... 39 km/h

engine power..... 158 kW

EQUIPMENT

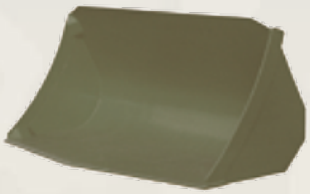
- split Drott's bucket,
- forks with extension of adjustable fork spacing, capable for loading the goods placed on Euro palettes or containers,
- rockinger RO 561 E catch attachment with pneumatic and electric sockets for towing the trailers,
- hermetic cab with filter ventilation unit and catch for rifles,
- water heater for heating the cab and for preheating the engine cooling liquid.

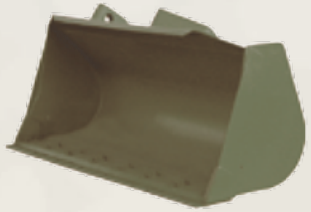
OPTIONAL EQUIPMENT

multi-purpose split bucket

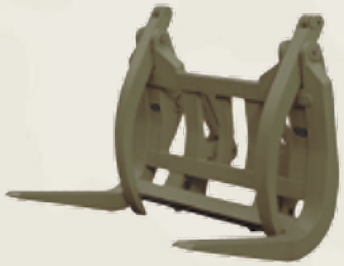
bucket for quick-connector

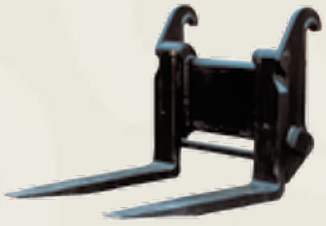
high unloading bucket


bucket for stones


bucket for light materials (5,7m^3)

bucket with teeth for stones


hydraulic grab


forks for quick-connector

forks (5,5 t)

Explosion-Proof Double Acting Mechanical Valve
TYPE ZPM 01 – 05/500

PARAMETERS

diameter of mounting tube Dz. ..... 193,7 mm
diameter of valve body..... 508 mm
valve height..... 506 mm
weight ..... 280 kg
overpressure of air shock wave ..... 0.5 MPa
closing valve minimal overpressure..... 0,015 MPa
aerodynamic drag of valve..... < 200 Pa
flow capacity..... 500 m^3/h

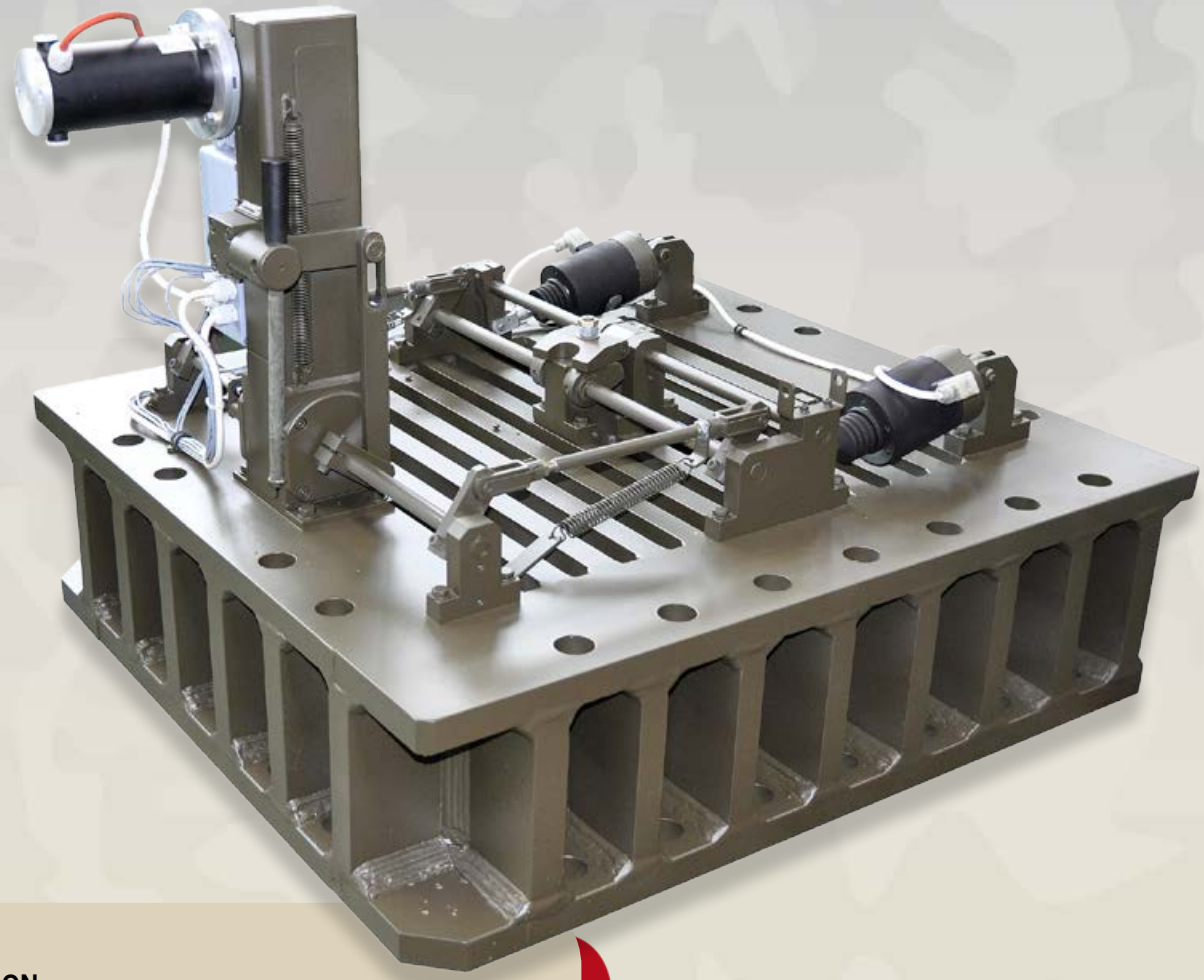
The valve ensures free flow of air in two directions.
Valve design makes possible mounting in vertical and horizontal position.

DESIGNATION

Protection of buildings and shelters ventilation ducts against shock wave (overpressure and negative pressure).

HSW
STALOWA WOLA

Automatic Explosion-proof Valve



TECHNICAL DATA

Overall dimensions of the valve..... 1058 x 940 x 400 mm

The solution consists of following original units:
– set of optoelectronics sensors to detect characteristic striking factors,
– information distribution and steering system,
– executing piece of the valve.

Components used in the valve are resistant on the direct acting of the assumed shock wave of blast and the secondary effects such as impact and shock.

The valve characterize comparatively small resistances of the grade 90 – 300 Pa over working flow from 17000 to 30000 m^3/h and large dynamic resistance.

DESIGNATION

The explosion-proof valve of new generation is designed to protect stationary shelters. The basic task of the explosion-proof valve is protection of shelter ventilation installations from acting the aerial shock wave.

Hermetic Protection – Bulkhead

TECHNICAL DATA

Bulkhead development dimensions (permissible according to order)
width.....up to 3 000 mm
height.....up to 3 500 mm

Weight
weight ..... 1550 kg

Mechanics resistance
for statical overpressure..... 0,1 MPa (10 T/ m^2)
fire resistance..... up to Class EI 120 according to descree MI from 7th of April 2004
bulkhead finish ..... painting

Primary drive
electric with motoreducer
motoreducer supply voltage.....400 V/ 230 AC
bulkhead time of open/ close move ..... 48 s

Emergency drive
Manual interlock from inside or outside of the compartment.

Hermeticness
(overpressure in the compartment) ..... 100 Pa
Overpressure drop in protected compartment to 0 in 2 minutes time after turned off air-filtration system.

DESIGNATION

Purpose of the Hermetic Protection – Bulkhead are protected areas inside buildings against shock wave, provides also fire resistance EI60 class and can keep 100 Pa overpressure in protected area with air-filtration
system working.
The Hermetic Protection-Bulkhead moves by electric drive. In emergency situations it can be moved from inside or outside of the compartment manually by one man. Bulkhead can be interlocked manually by two independent interlock mechanisms.

Ballistic Inserts for bullet-proof, splinter-proof and needle-proof vests

PARAMETERS

Weight of the inserts ..... up to 2,8 kg
Ballistic inserts have armour protection for Class 4 bullet-proof according to PN-V-87000 and meet requirements as follows:
type of weapon..... 7,62 kbk AKM
type of bullet..... 7,62 mm PS
– (with steel core), weight of ..... 7,9 g
bullet impact velocity .....710 + 20 m/s

PROTECTIVE VESTS FOR TROOPS OF OLV AND KLV

LUBAWA S.A company offers OLV and KLV vests with hard ballistic inserts manufactured by Huta Stalowa Wola S.A. Vests are manufactured according standards: PN-V-87000, NIJ Standard 0101.04, NIJ Standard 0115.00. The vest is intended for soldiers of land forces sub-units (infantrymen) – OLV and for drivers of military vehicles (KLV).

DESIGNATION

Ballistic steel inserts are intended for neutralization of impact effects of bullets fired by machine gun e.g. AK-47.
Inserts are intended for vests: bullet-proof, splinterproof and needle-proof.

Artillery Company Units of 120 mm Self-Propelled, tracked and wheeled Mortars – RAK

AUTOMATED COMMAND AND FIRE CONTROL SYSTEM

Automated Command and Fire Control System is intended to support work of function persons in artillery command in the scope of commanding and control the equipment:
- automation of commanding and firing procedures covering all firing positions,
- supporting the commander during execution combat mission.

AMMUNITION SUPPLY AND REPAIR OF ARMAMENT AND ELECTRONICS SYSTEMS

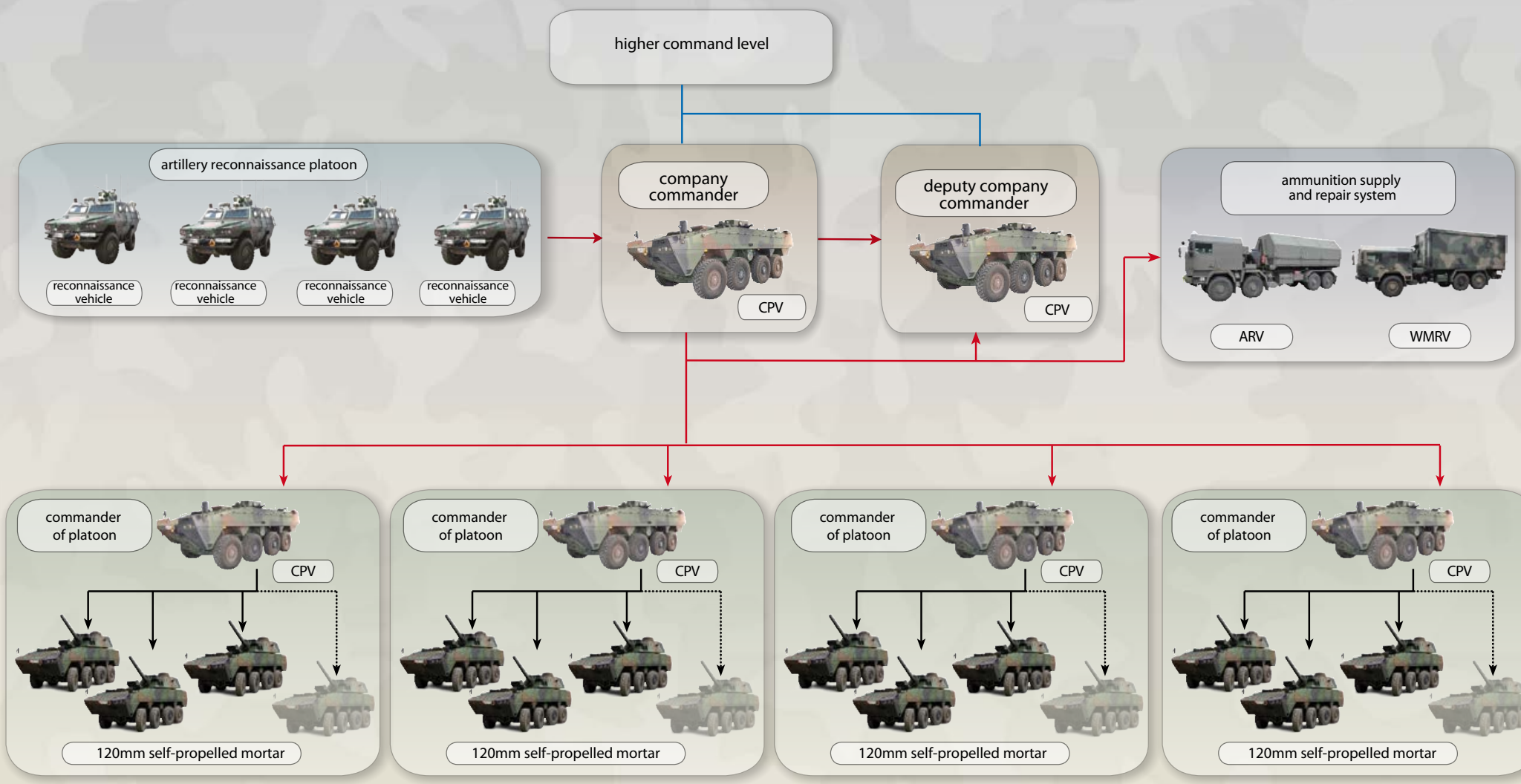
The System contains of following elements:
- ammunition supply vehicles on off-road trucks, adapted for transportation ammunition in containers,
- repair workshop for armament and electronics – wheel vehicle based.

The workshop provides technical support for artillery company in the scope of: field repairs of armament and electronics, support for maintenance works, delivery of LRU and spare parts.

DESIGNATION

Artillery company unit is a basic tactical-firing unit of land forces artillery.
Artillery company contains:
- 120 mm self-propelled automatic mortars,
- automated Command and Fire Control System,
- ammunition supply and repair of armament and electronics systems.

Examplary Artillery Company Unit of 120 mm Self-Propelled Mortar RAK – wheeled chassis



SHORTCUTS USED:
CPV - Command Post Vehicle
ARV - Ammunition Re-supply Vehicle
WMRV - Wheeled Maintenance and Recovery Vehicle

option - 4th mortar in platoon

option - deputy company commander CPV and commanders of platoon CPVs

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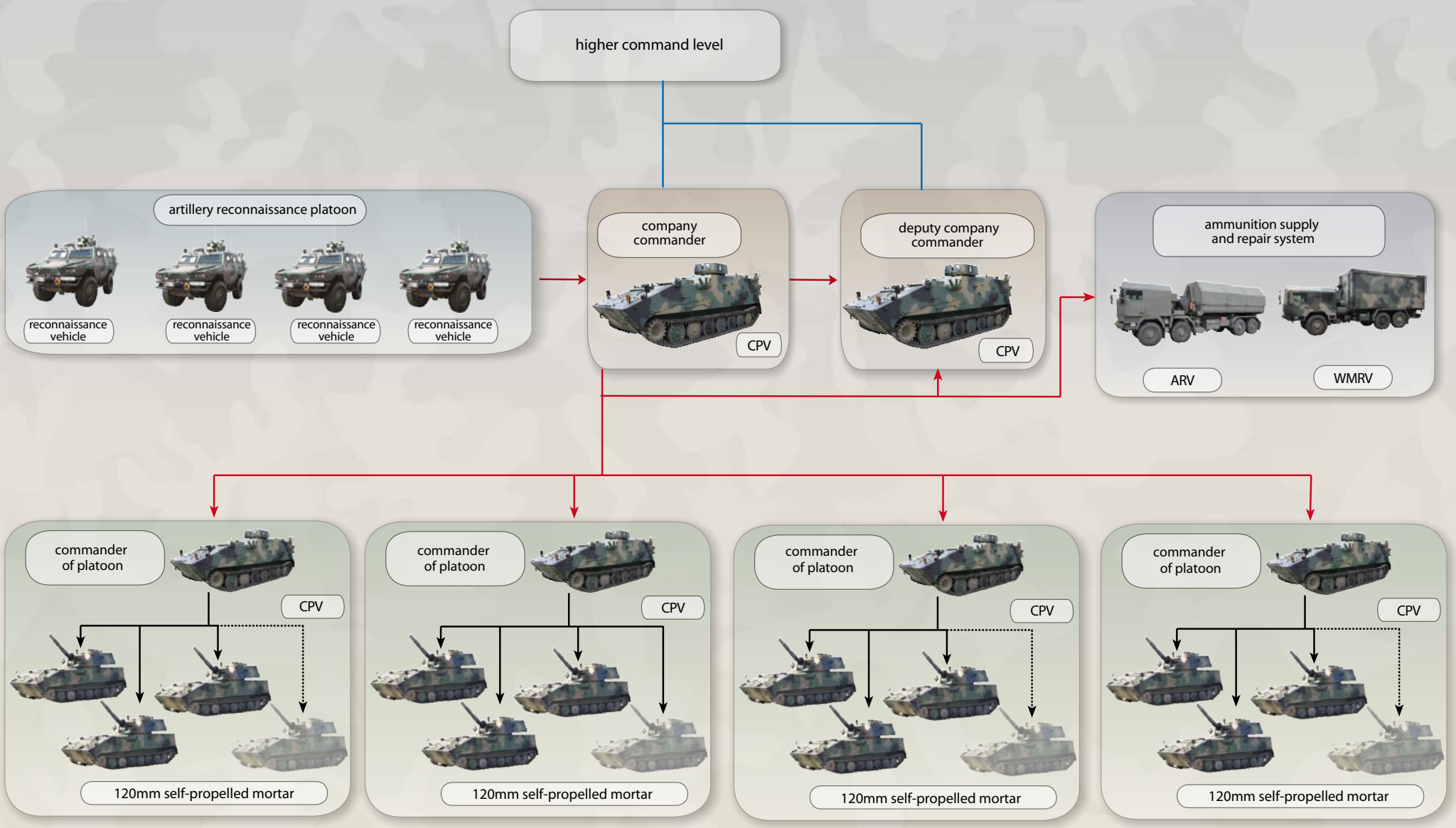
Examplary Artillery Company Unit of 120 mm Self-Propelled Mortar RAK – tracked chassis



SHORTCUTS USED:
CPV - Command Post Vehicle
ARV - Ammunition Re-supply Vehicle
WMRV - Wheeled Maintenance and Recovery Vehicle

option - 4th mortar in platoon

Artillery battalion of 155 mm Self-Propelled Howitzers REGINA

DESIGNATION

Artillery battalion of 155 mm self-propelled howitzers is a basic tactical firing module of land forces artillery.
Artillery battalion consists of:
– 155 mm self-propelled howitzers KRAB,
– automated Command ad Fire Control System TOPAZ,
– ammunition supply and repair of armament and electronics systems.

AUTOMATED COMMAND AND FIRE CONTROL SYSTEM TOPAZ

Automated fire control system of artillery division TOPAZ is intended to support work of function persons in artillery battalion in the scope of commanding and control the equipment:

– automation of commanding and firing procedures at the artillery battalion level covering all firing position,
– supporting the commander during execution combat mission,
– automation of ballistic calculations and digital transmitting the orders and messages,
– automatic and permanent control of logistic situation, inspection of mission execution and checking regularity of data circulation in the system,
– automatic co-operation with external command and fire control systems (C4I class).

AMMUNITION SUPPLY AND REPAIR OF ARMAMENT AND ELECTRONICS SYSTEMS

The system consists of following elements:
– ammunition supply vehicles on off-road trucks, adapted for transportation 155 mm ammunition in containers and lift mechanized loading and unloading,
– repair workshop for armament and electronics – wheel vehicle based.

The workshop provides technical support for artillery battalion in scope of: field repairs of armament and electronics, support for maintenance works, delivery of LRU and spare parts.

Depending on the location in the structure, artillery battalion REGINA can be supplemented in:

– visual identification sub-unit,
– radar,
– unmanned aeroscouts,
– meteo-station.

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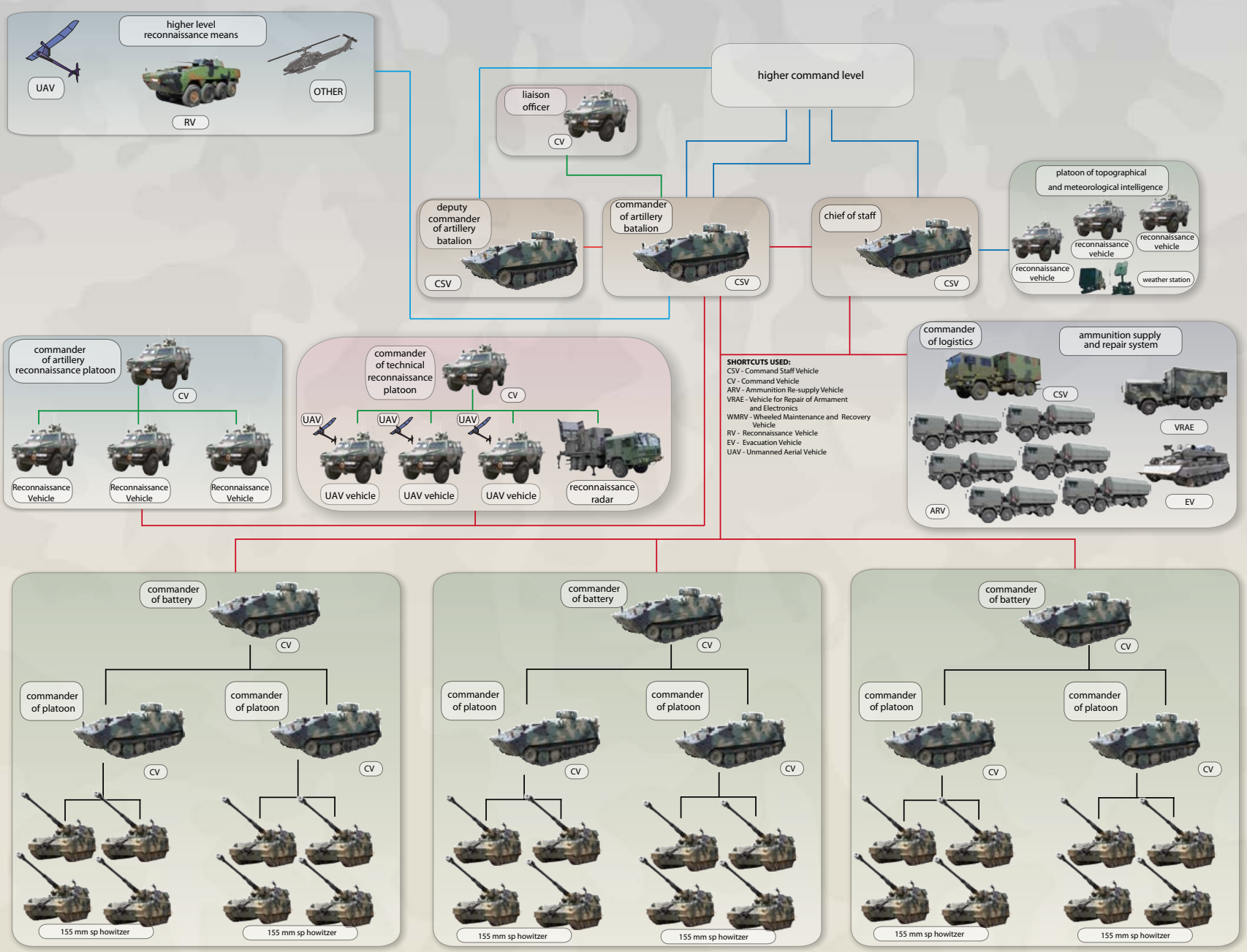
Examplary Artillery Battalion of 155 mm Self-Propelled Howitzers REGINA



Artillery Battalion of Rocket Launchers WR-40 LANGUSTA

DESIGNATION

Artillery Battalion of Multiple Launch Rocket Systems is designed for performing missions in the scope of direct fire support at long distances (40-70 km) and particularly it is used for fighting enemy fire support means and command systems, firing at armed forces in marshaling area, destruction of logistic infrastructure, disruption of enemy supply systems, isolation of uncommitted forces and gaining a military advantage in the air due to strikes on enemy air defence means.

SET OF ARMAMENT AND EQUIPMENT

Battalion consists of the following components:
- Rocket Launchers WR-40 LANGUSTA,
- Automated Command and Fire Control System, compatible with systems used on other artillery battalions,
- Command-Staff Vehicles built in containers mounted on a wheeled chassis 6x6 (for Commander of Battalion and Chief of Staff),
- Command and Reconnaissance Vehicles mounted on a wheeled chassis of Armoured Personnel Carrier (for Chief of Logistics, Commanders of Batteries, Commanders of Platoons, Platoon of Topographical and Meteorological Intelligence, UAV Group as well as for Liaison Officer),
- unit for determination of meteorological data (weather station),
- Logistical Vehicles (Ammunition Re-supply Vehicles, Vehicle for Repair of Armament and Electronics, Maintenance and Recovery Vehicle).

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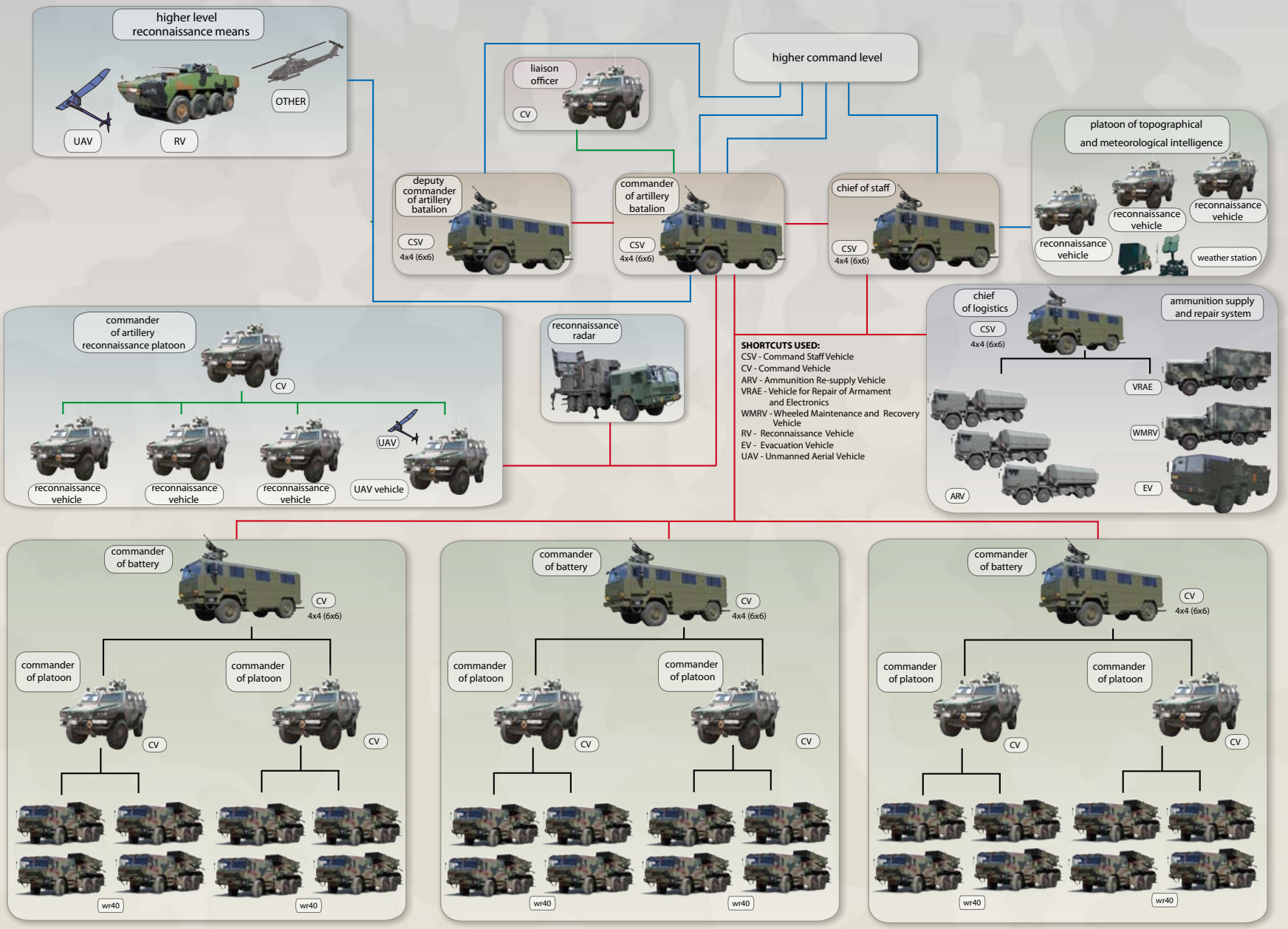
Examplary Artillery Battalion of Rocket Launchers
WR-40 LANGUSTA



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Artillery Equipment

Armoured Carriers

Engineering Equipment

Military Units

NCAGE 0220H

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